Section V: Emergency Planning

A. PSM Emergency Preparedness
Each employer must address actions that workers will take when there is an unwanted release of highly hazardous chemicals. Employers will need to decide: if they want workers to handle and stop small or minor incidental releases; whether they wish to mobilize the available resources at the plant and have them brought to bear on a more significant release; or whether they want their workers to evacuate the danger area and promptly escape to a preplanned safe zone area and allow the local community emergency response organizations to handle the release; or whether the employer wants to use some combination of these actions. Employers will need to select how many different emergency preparedness or lines of defense they plan to have, develop the necessary plans and procedures, properly train workers in their emergency duties and responsibilities, and effectively implement the selected plans and procedures (29 CFR 1910.119 Appendix C).

One effective way for medium to large facilities to enhance coordination and communication during emergencies for on plant operations and with local community organizations is for employers to establish and equip an emergency control center. The emergency control center would be sited in a safe zone area so that it could be occupied throughout the duration of an emergency. The center would serve as the major communication link between the on-scene incident commander and plant or corporate management as well as with local community officials. The communication equipment in the emergency control center should include a network to receive and transmit information by telephone, radio or other means. It is important to have a backup communication network in case of a power failure or if a means of communication fails. The center should also be equipped with the plant layout and community maps, utility drawings (including fire and water), emergency lighting, appropriate reference materials such as a government agency notification list, company personnel phone list, Superfund Amendments and Reauthorization Act (SARA) Title III reports and safety data sheets, emergency plans and procedures manual, a list of emergency response equipment and their location(s), mutual aid information, access to meteorological or weather condition data and any dispersion modeling data (29 CFR 1910.119 Appendix C).

B. Emergency Action Plans and Incident Prevention Planning
- To prepare for any contingencies, an emergency action plan (EAP) establishes procedures to prevent fatalities, injuries, and property damage (IAFC, 2008). An EAP (29 CFR 1910.38) is a workplace requirement when another applicable OSHA standard requires it, for example, 29 CFR 1910.119 (PSM standard) and 29 CFR 1910.272 (Grain Handling Facilities standard).
- The host employer for a facility that must implement the requirements of the PSM standard is responsible for training its workers, this includes additional training to workers who provide emergency response actions covered by OSHA’s Hazardous Waste Operations and Emergency Response standard, 29 CFR 1910.120(q). The host employer must also review the facility’s emergency shutdown and response procedures with workers and clearly communicate EAPs to contractors. Contract employers are responsible for ensuring that their workers are instructed in potential fire, explosion, or toxic release hazards related to their jobs.
- Employers at a minimum must have an EAP which will facilitate the prompt evacuation of workers when an unwanted release of highly hazardous chemical occurs. This means that the employer will have a plan that will be activated by an alarm system to alert workers when to evacuate and, that workers who are physically impaired will have the necessary support and assistance to get them to the safe zone as well. The intent of these requirements is to alert and move workers to a safe zone quickly. Delayed or confusing alarms are to be avoided. The use of process control centers or similar
process buildings in the process area as safe areas is discouraged because these structures may not be properly sited and may not be designed to withstand over-pressures from shockwaves resulting from explosions in the process area (29 CFR 1910.119 Appendix C).

- If the Process Safety Management of Highly Hazardous Chemicals standard (29 CFR 1910.119(n)) applies to the facility:
  - The employer must establish and implement an EAP for the entire plant in accordance with the provisions of 29 CFR 1910.38. In addition, the EAP must include procedures for handling small releases of hazardous chemicals.
  - At a minimum, employers must implement the requirements of 29 CFR 1910.119 for preventing or minimizing the consequences of catastrophic releases of toxic, reactive, flammable, or explosive chemicals. These releases may result in toxic, fire or explosion hazards (II).
  - Employers must address the actions that workers will take when there is an incidental release of highly hazardous chemicals in the process area. If the employer wants workers to evacuate the area, then the EAP will be activated. For outdoor processes where wind direction is important for selecting the safe route to a refuge area, the employer should place a wind direction indicator (such as a wind sock or pennant) at the highest point that can be seen throughout the process area. Workers can move in the direction of cross wind to upwind to gain safe access to the refuge area by knowing the wind direction (29 CFR 1910.119 Appendix C).
  - If the employer wants specific workers in the release area to control or stop minor emergencies or incidental releases, these actions must be planned for in advance and procedures developed and implemented. Appropriate equipment for the hazards must be provided and training conducted for workers that will perform the emergency work before they respond to handle an actual release. The employer's training program will address the training needs of workers that are expected to handle incidental or minor releases (29 CFR 1910.119 Appendix C), and must include the training requirements of the Hazard Communication Standard (HCS, 29 CFR 1910.1200).
  - Employers covered by the 29 CFR 1910.119 standard may also be subject to the hazardous waste and emergency response provisions contained in 29 CFR 1910.120 (a), (p) and (q) (the Hazardous Waste Operations and Emergency Response (HAZWOPER) standard; CPL 02-02-073)). Preplanning for releases that are more serious than incidental releases is another important line of defense to be used by the employer. When a serious release of a highly hazardous chemical occurs, the employer - through preplanning - would have determined in advance the actions that workers will take. The evacuation of the immediate release area and other areas (as necessary) would be accomplished under the EAP. If the employer wishes to use plant personnel such as a fire brigade, spill control team, a hazardous materials team, or to have workers render aid to those in the immediate release area and control or mitigate the incident, these actions are covered by 29 CFR 1910.120. If outside assistance is necessary, such as through mutual aid agreements between employers or local government emergency response organizations, these emergency responders are also covered by 29 CFR 1910.120. The safety and health protections required for emergency responders are the responsibility of their employers and of the on-scene incident commander. Responders may be working under very hazardous conditions and therefore the objective is to have them competently led by an on-scene incident commander and the commander's staff, properly equipped to do their assigned work safely, and fully trained to carry out their duties safely before they respond to an emergency. Drills, training exercises, or simulations with the local community emergency response planners and responder organizations are ways of attaining better preparedness. This close cooperation and coordination between plant and local
Community emergency preparedness managers will also aid the employer in complying with the Environmental Protection Agency's Risk Management Plan criteria (29 CFR 1910.119 Appendix C).

- The fire prevention and protection requirements in 29 CFR 1910.252(a) must be implemented and documented in the hot work permit, prior to beginning any hot work operations (29 CFR 1910.119(k)(2)).

- If the Grain Handling Facilities standard (29 CFR 1910.272(d); 29 CFR 1910.272 Appendix A) applies:
  - At a minimum, employers must implement the requirements contained in 29 CFR 1910.272 for the control of grain dust fires and explosions (IV.E; IV.F).
  - The employer must develop and implement an EAP in compliance with 29 CFR 1910.38. It is also recommended that employers seek the assistance of the local fire department for the purpose of preplanning for emergencies. Preplanning is encouraged to facilitate coordination and cooperation between facility personnel and those who may be called upon for assistance during an emergency. It is important for emergency service units to be aware of the usual work locations of employees at the facility (29 CFR 1910.272 Appendix A).
  - The employer must train workers who serve as observers for entry into grain storage structures on rescue procedures, including how to request for additional assistance (29 CFR 1910.272(g)(5)). It is also important to train workers in the recognition and prevention of hazards associated with grain facilities, especially those hazards specific to their own tasks. Workers must understand the factors necessary to produce a fire or explosion (29 CFR 1910.272 Appendix A; III.C).
  - The use of floor plans or workplace maps which clearly show the emergency escape routes should be included in the EAP; color coding will aid workers in determining their route assignments. The employer should designate a safe area outside the facility where workers can congregate after an emergency evacuation and implement procedures to account for all workers (29 CFR 1910.272 Appendix A).
  - It is important that the type of employee alarm used to notify workers of an emergency is distinguishable and distinct from all other signals and alarms used in the workplace (29 CFR 1910.272 Appendix A).
  - The employer must explain pertinent provisions of the EAP to contractors. The employer must inform contractors performing work at the grain handling facility of known potential fire and explosion hazards related to the contractor's work and work area (29 CFR 1910.272(i)). Also, in the event of an emergency, contractors should be able to take appropriate action as a part of the overall facility EAP. Contractors should also be aware of the employer's permit systems. Contractors should develop specified procedures for performing hot work and for entering bins, silos, and tanks, and these activities should be coordinated with the facility employer (29 CFR 1910.272 Appendix A).
  - The employer must provide at least two means of emergency escape from galleries/bin decks (29 CFR 1910.272(o)(1)).
  - The employer must provide at least one means of emergency escape in tunnels of existing grain elevators. Tunnels in grain elevators constructed after the effective date of the 29 CFR 1910.272 standard, must be provided with at least two means of emergency escape (29 CFR 1910.272(o)(2)).
  - The employer must equip the employee with a body harness and lifeline or boatswain’s chair for entry into grain storage structures when the worker enters at or above the grain level, or whenever a worker walks or stands on, or in stored grain, of a depth which poses an engulfment hazard (29 CFR 1910.272(g)(2)).
The employer must ensure that a properly-equipped observer maintains communication with a worker who enters a bin, silo, or tank (29 CFR 1910.272(g)(3)).

The employer must provide rescue equipment designed for the bin, silo, or tank being entered (29 CFR 1910.272(g)(4)).

- **Fire control measures** in process plants that are covered by the flammable liquid standard must include (29 CFR 1910.106(h)(6)):
  - *Portable extinguishers.* Approved portable fire extinguishers of the appropriate size, type, and number must be provided.
  - *Other controls.* Where the special hazards of operation or exposure indicate a need, the following fire control provisions must be provided:
    - A reliable water supply must be available within the pressure and quantity adequate to meet the probable firefighting demands.
    - Hydrants must be provided in accordance with accepted good practice.
    - Hose connected to a source of water must be installed so that all vessels, pumps, and other equipment containing flammable liquids can be reached with at least one hose stream. Nozzles that are capable of discharging a water spray must be provided.
    - Processing plants must be protected by an approved automatic sprinkler system or equivalent extinguishing system. If special extinguishing systems (including but not limited to those employing foam, carbon dioxide, or dry chemical) are provided, approved equipment must be used and installed in an approved manner.
  - *Alarm systems.* An approved means for prompt notification of a fire to those within the plant and any public fire department available must be provided. It may be advisable to connect the plant system with the public system where a public fire alarm system is available.
  - *Maintenance.* All plant fire protection facilities shall be adequately maintained and periodically inspected and tested to make sure they are always in satisfactory operating condition and that they will serve their purpose in an emergency.

C. **Fire Extinguishers**

OSHA’s requirements regarding portable fire extinguishers in workplaces are covered by 29 CFR 1910.157, Portable Fire Extinguishers.

- Where the employer has established and implemented a written fire safety policy which requires the immediate and total evacuation of workers from the workplace upon the sounding of a fire alarm/signal and which includes an EAP and a fire prevention plan that meet the requirements of 29 CFR 1910.38 and 29 CFR 1910.39 respectively, and when extinguishers are not available in the workplace, the employer is exempt from all the requirements of 29 CFR 1910.157 unless a specific standard in 29 CFR Part 1910 requires that a portable fire extinguisher be provided (29 CFR 1910.157(b)(1)).

- Where the employer has an EAP meeting the requirements of 29 CFR 1910.38, which designates certain employees to be the only workers authorized to use the available portable fire extinguishers, and which requires all other workers in the fire area to immediately evacuate the affected work area upon the sounding of the fire alarm, the employer is exempt from the distribution requirements in the selection and distribution section of 29 CFR 1910.157 (29 CFR...
1910.157(b)(2).